Amendments to the Drawings

The replacement sheet in the Appendix includes changes to Figure 6. This sheet, which also includes Figure 5, replaces the original sheet including Figures 5-6. In Figure 6, the element number 40 has been added to identify the previously-shown linking tracks. The specification has been amended at page 9, last two lines, to refer to the linking tracks 40.

Remarks

The specification and drawings have been amended to make editorial changes therein without adding new matter, bearing in mind the criticisms in the Official Action, to place the application in condition for allowance at the time of the next Official Action.

The indication that claims 5-6 and 19 have been allowed is acknowledged with thanks.

Claims 1-2, 4, 7-17, and 20 were rejected under §112, first paragraph, and have been amended. Reconsideration and withdrawal of the rejection are respectfully requested.

Claims 1, 4, and 11 were rejected as unpatentable over KNAPP 5,325,442 in view of JOHNSON et al. 6,661,240 and ROZIERE et al. FR 2 756 048. Claims 2 and 9 were rejected further in view of VRANISH 5,373,245; claim 7 was rejected further in view of COVELEY 5,952,835; claim 8 was rejected further in view of STANLEY et al. 6,703,845; claims 10, 12, and 14 were rejected further in view of LANE 5,623,552; claim 13 was rejected further in view of CRAWFORD 2002/0122006; claim 15 was rejected further in view of LIND 6,225,939; claim 16 was rejected further in view of MCDONNELL et al. 6,348,862; claim 17 was rejected further in view of HABRAKEN et al. 5,883,935; and claim 20 was rejected further in view of TRAVANTY et al. 4,987,583. Claim 1 has been amended and reconsideration and withdrawal of the rejections of claims 1-2, 4, 7-17, and 20 are respectfully requested.

Support for the amendment is found on page 12, lines 33-34 and page 3, lines 22-23 (to the nearest millimeter.)

KNAPP discloses a fingerprint sensing device comprising sense electrodes covered by insulating material adapted for receiving a finger. A capacitor is formed by each sense electrode in combination with the respective overlying portion of the finger surface. The device is intended for having a finger in contact with its surface (see Figure 3) and measure distances within micrometers (see Figure 4).

KNAPP does not disclose that the electronic means comprises for each detection electrode, a floating capacitive bridge cooperating with polling means to measure sequentially the respective capacitances, or the digital means for controlling and calculating in real time absolute distance between electrode and the object. KNAPP also does not disclose the sensors having a range greater than 100 mm with a resolution of the order of a millimeter.

ROZIERE et al. disclose a floating capacitive bridge featuring a capacitive sensor which comprises a measuring electrode, a guard electrode and an earthed electrode. ROZIERE et al. also disclose polling means to measure sequentially the capacitance of several capacitive sensors. However, ROZIERE et al. do not disclose measurement of capacitance between an electrode and an object or body, or that the sensors have a range

greater than 100 mm with a resolution of the order of a millimeter.

JOHNSON et al. disclose a position control system with digital means for detecting motion and proximity in real time. JOHNSON et al. do not disclose the detection antenna comprising a plurality of capacitive proximity sensors that each includes only a single measurement electrode. JOHNSON et al. also do not disclose a device whose sensors have a range greater than 100 mm with a resolution of the order of a millimeter.

The device disclosed by JOHNSON et al. is designed to allow a system such as a medical device to follow the shape of an object such as a body while maintaining a fixed distance between the system and the object (see Figure 9 and column 6, lines 5-9). It requires recalibration in case of change of the object or the nominal capacitive load. It mainly detects variations around that nominal calibrated capacitive load (column 3, lines 25-34). The electrodes are also optimized to detect objects around a fixed distance (Figure 8 and column 5, lines 41-48).

In contrast to the combination of KNAPP, JOHNSON et al. and ROZIERE et al., the device according to the present invention is designed, as indicated in page 3, lines 20-30, so as to "propose a proximity detector (…) which provides accurate measurement (…) of the position of an object at a measured range (…) greater than that permitted by proximity detectors of the prior art, in particular having the effect of increasing the

speed of movement of radiology machines (…)". Actually, the sensors have a range "greater than 100 mm with a resolution of the order of millimeters" (page 12, lines 33-34), "typically to the nearest millimetre" (page 3, lines 22-23).

The fact that the sensors according to the present invention provide an accurate measurement over an extended range greater than 100 mm in real time is a key feature that makes it possible to apply more advanced control schemes to the displacement of the medical system and allow higher speed, for instance by taking into account the dynamic behavior of the system and adapting in real time to the movements of the patient body (see page 12 lines 33-34 and page 13 lines 1-2).

Another feature of the device according to the present invention is that each electrode can measure a distance within the full range (page 12, lines 13-14), ensuring that the maximum lateral resolution (following the electrode size) is always available so as to detect small features like a patient's nose or finger within the full range during the high-speed displacement, for a maximum of operation safety. So the device according to the present invention provides simultaneously 100 mm extended measurement range, millimeter resolution over this range, maximum lateral resolution according to individual electrode size and real time operation (typically one complete proximity measurement every 50 ms, see page 13 lines 31-32). It would not have been obvious to one ordinary skill in the art at the time the

invention was made to reach that result by combining KNAPP with ROZIERE et al. and JOHNSON et al.

The claims depending from claim 1 are allowable for the same reasons.

In view of the present amendment and the foregoing remarks, it is believed that the present application has been placed in condition for allowance. Reconsideration and allowance are respectfully requested.

The Commissioner is hereby authorized in this, concurrent, and future replies, to charge payment or credit any overpayment to Deposit Account No. 25-0120 for any additional fees required under 37 C.F.R. § 1.16 or under 37 C.F.R. § 1.17.

Respectfully submitted,

YOUNG & THOMPSON

/Thomas W. Perkins/

Thomas W. Perkins, Reg. No. 33,027
209 Madison Street
Suite 500
Alexandria, VA 22314
Telephone (703) 521-2297
Telefax (703) 685-0573
(703) 979-4709

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APPENDIX:

- one replacement drawing sheet